What is claimed is:

1. A method of steering a vehicle along a predetermined 2-D path on a 2-D plane by using a steering control algorithm , said vehicle including a navigation system and including a navigation antenna, said navigation antenna being mounted on said vehicle at an optimum antenna position, said steering control algorithm assuming a nominal antenna position at a predetermined reference point; said method comprising the steps of:

(A) obtaining a set of positioning data of said vehicle by using said navigation system and by using said navigation antenna mounted at said optimum antenna position;

(B) modifying said set of positioning data of said vehicle;

(C) measuring a steering angle of the front wheels of said vehicle relative to a predetermined reference direction on said 2-D plane;

(D) calculating a correction to said measured steering angle on said 2-D plane;

and

(E) performing a steering action by using said correction to said measured steering angle on said 2-D plane in order to move said vehicle along said predetermined 2-D path on said 2-D plane.

2. The method of claim 1, wherein said step (A) of obtaining said set of positioning data of said vehicle by using said navigation system and by using said navigation antenna mounted at said optimum antenna position further includes the step of:

(A1) obtaining said set of positioning data of said vehicle by using a navigation system selected from the group consisting of: {GPS; GLONASS; combined GPS/GLONASS; GALILEO; pseudolite-based navigation system; and inertial navigation system (INS)}.

3. The method of claim 1, wherein said step (B) of modifying said set of positioning data of said vehicle further includes the step of:

(B1) specifying a distance between said nominal antenna position and said optimum antenna position.

4. The method of claim 1, wherein said step (C) of measuring said steering angle of said vehicle on said 2-D plane further includes the step of:

(C1) using an angular sensor to measure said steering angle of the front wheels of said vehicle relative to said predetermined reference direction on said 2-D plane.

5. The method of claim 1, wherein said step (C) of measuring said steering angle of said vehicle on said 2-D plane further includes the step of:

(C2) using a rotary potentiometer to measure said steering angle of the front wheels of said vehicle relative to said predetermined reference direction on said 2-D plane.

6. The method of claim 1, wherein said step (D) of calculating said correction to said measured steering angle on said 2-D plane further includes the steps of:

(D1) feeding a set of control data into said steering control algorithm ;

wherein said set of control data is selected from the group consisting of: {said set of modified positioning data of said vehicle; said measured steering angle on said 2-D plane; and a set of data defining said predetermined 2-D path on said 2-D plane};

and

(D2) calculating said correction to said measured steering angle on said 2-D plane by using said steering control algorithm.

7. The method of claim 1, wherein said step (E) of performing said steering action by using said correction to said measured steering angle on said 2-D plane further includes the step of:

(E1) using a 2-D hydraulic system to realize said correction to said measured steering angle on said 2-D plane.

8. The method of claim 1, wherein said step (E) of performing said steering action by using said correction to said measured steering angle on said 2-D plane further includes the step of:

(E2) using a 2-D "flight by wire" system to realize said correction to said measured steering angle on said 2-D plane.

9. A method of steering a vehicle along a predetermined 3-D path on a 3-D surface by using a steering control algorithm , said vehicle including a navigation system and including a navigation antenna, said navigation antenna being mounted on said vehicle at an optimum antenna position, said steering control algorithm assuming a nominal antenna position at a predetermined

reference point; said method comprising the steps of:

(A) obtaining a set of positioning data of said vehicle by using said navigation system and by using said navigation antenna mounted at said optimum antenna position;

(B) modifying said set of positioning data of said vehicle; (C) measuring a set of steering angles on said 3-D surface;

(D) calculating a set of corrections to said set of measured steering angles on said 3-D surface;

and

(E) performing a steering action by using said set of corrections to said set of measured steering angles on said 3-D surface in order to move said vehicle along said predetermined 3-D path on said 3-D surface.

10. The method of claim 9, wherein said step (A) of obtaining said set of positioning data of said vehicle by using said navigation system and by using said navigation antenna mounted at said optimum antenna position further includes the step of:

(A1) obtaining said set of positioning data of said vehicle by using a navigation system selected from the group consisting of: {GPS; GLONASS; combined GPS/GLONASS; GALILEO; pseudolite-based navigation system; and inertial navigation system (INS)}.

11. The method of claim 9, wherein said step (B) of modifying said set of positioning data of said vehicle further includes the step of:

(B1) specifying a distance between said nominal antenna position and said

optimum antenna position.

12. The method of claim 9, wherein said step (C) of measuring said set of steering angles of said vehicle on said 3-D surface further includes the step of:

(C1) using at least one angular sensor to measure said set of steering angles on said 3-D surface.

13. The method of claim 9, wherein said step (C) of measuring said set of steering angles of said vehicle on said 3-D surface further includes the step of:

(C2) using at least one rotary potentiometer to measure said set of steering angles on said 3-D surface.

14. The method of claim 9, wherein said step (D) of calculating said set of corrections to said set of measured steering angles on said 3-D surface further includes the steps of:

(D1) feeding a set of control data into said steering control algorithm ; wherein said set of control data is selected from the group consisting of: {said set of modified positioning data of said vehicle; said measured steering angle on said 3-D surface; and a set of data defining said predetermined 3-D path on said 3-D surface};

and

(D2) calculating said set of corrections to said set of measured steering angles on said 3-D plane by using said steering control algorithm.

15. The method of claim 9, wherein said step (E) of performing said steering

action by using said set of corrections to said set of measured steering angles on said 3-D surface further includes the step of:

(E1) using a 3-D hydraulic system to realize said set of corrections to said set of measured steering angles on said 3-D surface.

16. The method of claim 9, wherein said step (E) of performing said steering action by using said set of corrections to said set of measured steering angles on said 3-D plane further includes the step of:

(E2) using a 3-D "flight by wire" system to realize said set of corrections to said set of measured steering angles on said 3-D plane.

17. A method of steering a vehicle along a 2-D path on a 2-D plane by using a steering control algorithm , said vehicle including a navigation system and including a navigation antenna, said navigation antenna being mounted on said vehicle at an optimum antenna position, said steering control algorithm assuming a nominal antenna position at a predetermined reference point; said method comprising the steps of:

(A) obtaining a set of positioning data of said vehicle by using said navigation system and by using said navigation antenna mounted at said optimum antenna position;

(B) obtaining a set of positioning data that defines said 2-D path on said 2-D plane;

(C) modifying said set of positioning data of said vehicle; (D) measuring a steering angle of the front wheels of said vehicle relative to a predetermined reference direction on said 2-D plane;

(E) calculating a correction to said measured steering angle on said 2-D plane;

and

(F) performing a steering action by using said correction to said measured steering angle on said 2-D plane in order to move said vehicle along said 2-D path on said 2-D plane.

18. The method of claim 17, wherein said step (A) of obtaining said set of positioning data of said vehicle by using said navigation system and by using said navigation antenna mounted at said optimum antenna position further includes the step of:

(A1) obtaining said set of positioning data of said vehicle by using a navigation system selected from the group consisting of: {GPS; GLONASS; combined GPS/GLONASS; GALILEO; pseudolite-based navigation system; and inertial navigation system (INS)}.

19. The method of claim 17, wherein said step (B) of obtaining said set of positioning data that defines said 2-D path on said 2-D plane further includes the step of:

(B1) receiving said set of positioning data that defines said 2-D path on said 2-D plane by said navigation antenna.

20. The method of claim 17, wherein said step (B1) of receiving said set of positioning data that defines said 2-D path on said 2-D plane further includes the step of:

(B1,1) receiving a set of broadcasted positioning data that defines said 2-D path on said 2-D plane; wherein said set of broadcasted positioning data that defines said 2-D path on said 2-D plane is broadcasted by a Base Station (BS).

21. The method of claim 17, wherein said step (B1) of receiving said set of positioning data that defines said 2-D path on said 2-D plane further includes the step of:

(B1,2) receiving a set of Web-casted positioning data that defines said 2-D path on said 2-D plane; wherein said set of Web-casted positioning data that defines said 2-D path on said 2-D plane is Web-casted from an Internet web-site.

22. The method of claim 17, wherein said step (C) of modifying said set of positioning data of said vehicle further includes the step of:

(C1) specifying a distance between said nominal antenna position and said optimum antenna position.

23. The method of claim 17, wherein said step (D) of measuring said steering angle of said vehicle on said 2-D plane further includes the step of:

(D1) using an angular sensor to measure said steering angle of the front wheels of said vehicle relative to said predetermined reference direction on said 2-D plane.

24. The method of claim 17, wherein said step (E) of calculating said correction to said measured steering angle on said 2-D plane further includes the steps of:

(E1) feeding said set of modified positioning data of said vehicle and said

measured steering angle on said 2-D plane into said steering control algorithm ; and

(E2) using said steering control algorithm that utilizes a set of control data to calculate said correction to said measured steering angle on said 2-D plane; wherein said set of control data is selected from the group consisting of: {said set of modified positioning data of said vehicle; said measured steering angle on said 2-D plane; and said set of positioning data that defines said 2-D path on said 2-D plane}.

25. The method of claim 17, wherein said step (F) of performing said steering action further includes the step of:

(F1) using a hydraulic system to realize said correction to said measured steering angle on said 2-D plane.

26. The method of claim 17, wherein said step (F) of performing said steering action further includes the step of:

(F1) using a "flight by wire" system to realize said correction to said measured steering angle on said 2-D plane.

27. A method of steering a vehicle along a 3-D path on a 3-D surface by using a steering control algorithm , said vehicle including a navigation system and including a navigation antenna, said navigation antenna being mounted on said vehicle at an optimum antenna position, said steering control algorithm assuming a nominal antenna position at a predetermined reference point; said method comprising the steps of:

(A) obtaining a set of positioning data of said vehicle by using said navigation system and by using said navigation antenna mounted at said optimum antenna position;

(B) obtaining a set of positioning data that defines said 3-D path on said 3-D surface;

(C) modifying said set of positioning data of said vehicle; (D) measuring a set of steering angles of the front wheels of said vehicle on said 3-D surface;

(E) calculating a set of corrections to said set of measured steering angles on said 3-D surface;

and

(F) performing a steering action by using said set of corrections to said set of measured steering angles on said 3-D surface in order to move said vehicle along said 3-D path on said 3-D surface.

28. The method of claim 27, wherein said step (A) of obtaining said set of positioning data of said vehicle by using said navigation system and by using said navigation antenna mounted at said optimum antenna position further includes the step of:

(A1) obtaining said set of positioning data of said vehicle by using a navigation system selected from the group consisting of: {GPS; GLONASS; combined GPS/GLONASS; GALILEO; pseudolite-based navigation system; and inertial navigation system (INS)}.

29. The method of claim 27, wherein said step (B) of obtaining said set of

positioning data that defines said 3-D path on said 3-D surface further includes the step of:

(B1) receiving said set of positioning data that defines said 3-D path on said 3-D surface by said navigation antenna.

30. The method of claim 27, wherein said step (B1) of receiving said set of positioning data that defines said 3-D path on said 3-D surface further includes the step of:

(B1,1) receiving a set of broadcasted positioning data that defines said 3-D path on said 3-D surface; wherein said set of broadcasted positioning data that defines said 3-D path on said 3-D surface is broadcasted by a Base Station (BS).

31. The method of claim 27, wherein said step (B1) of receiving said set of positioning data that defines said 3-D path on said 3-D surface further includes the step of:

(B1,2) receiving said set of Web-casted positioning data that defines said 3-D path on said 3-D surface; wherein said set of Web-Casted positioning data that defines said 3-D path on said 3-D surface is Web-casted from an Internet web-site.

32. The method of claim 27, wherein said step (C) of modifying said set of positioning data of said vehicle further includes the step of:

(C1) specifying a distance between said nominal antenna position and said optimum antenna position.

33. The method of claim 27, wherein said step (D) of measuring said set of steering angles of said vehicle on said 3-D surface further includes the step of:

(D1) using an angular sensor to measure said set of steering angles of the front wheels of said vehicle on said 3-D surface.

34. The method of claim 27, wherein said step (E) of calculating said set if corrections to said set of measured steering angles on said 3-D surface further includes the steps of:

(E1) feeding said set of modified positioning data of said vehicle and said set of measured steering angles on said 3-D surface into said steering control algorithm ;

and

(E2) using said steering control algorithm that utilizes a set of control data to calculate said set of corrections to said set of measured steering angles on said 3-D surface; wherein said set of control data is selected from the group consisting of: {said set of modified positioning data of said vehicle; said set of measured steering angles on said 3-D surface; and said set of positioning data that defines said 3-D path on said 3-D surface}.

35. The method of claim 27, wherein said step (F) of performing said steering action further includes the step of:

(F1) using a hydraulic system to realize said set of corrections to said set of measured steering angles on said 3-D plane.

36. The method of claim 27, wherein said step (F) of performing said steering

action further includes the step of:

(F1) using a "flight by wire" system to realize said set of corrections to said set of measured steering angles on said 3-D surface.

37. An apparatus for steering a vehicle along a predetermined 2-D path on a 2-D plane comprising:

(A) a means for obtaining a set of positioning data of said vehicle; (B) a means for modifying said set of positioning data of said vehicle;

(C) a means for measuring a steering angle of the front wheels of said vehicle relative to a predetermined reference direction on said 2-D plane;

(D) a means for calculating a correction to said measured steering angle on said 2-D plane;

and

(E) a means for performing a steering action by using said correction to said measured steering angle on said 2-D plane in order to move said vehicle along said predetermined 2-D path on said 2-D plane.

38. The apparatus of claim 37, wherein said (A) means for obtaining said set of positioning data of said vehicle further includes:

(A1) a navigation system selected from the group consisting of: {GPS; GLONASS; combined GPS/GLONASS; GALILEO; pseudolite-based navigation system; and inertial navigation system (INS)};

and

(A2) a navigation antenna mounted on said vehicle at an optimum antenna position.

39. The apparatus of claim 38, wherein said navigation antenna is assumed to be mounted at a nominal navigation antenna position a predetermined reference point, and wherein said means (B) for modifying said set of positioning data of said vehicle further includes:

(B1) a means for specifying a distance between said nominal navigation antenna position and said optimum navigation antenna position.

40. The apparatus of claim 37, wherein said means (C) for measuring said steering angle of the front wheels of said vehicle relative to said predetermined reference direction on said 2-D plane further includes:

(C1) an angular sensor configured to measure said steering angle of the front wheels of said vehicle relative to said predetermined reference direction on said 2-D plane.

41. The apparatus of claim 37, wherein said means (C) for measuring said steering angle of the front wheels of said vehicle relative to said predetermined reference direction on said 2-D plane further includes:

(C1) a rotary potentiometer configured to measure said steering angle of the front wheels of said vehicle relative to said predetermined reference direction on said 2-D plane.

42. The apparatus of claim 37, wherein said means (D) for calculating said correction to said measured steering angle on said 2-D plane further includes:

(D1) a steering control algorithm configured to use a set of control data to calculate said correction to said measured steering angle on said 2-D plane;

wherein said set of control data is selected from the group consisting of: {said set of modified positioning data of said vehicle; said measured steering angle on said 2-D plane; and a set of data defining said predetermined 2-D path on said 2-D plane}.

43. The apparatus of claim 37, wherein said means (E) for performing said steering action by using said correction to said measured steering angle on said 2-D plane further includes:

(E1) a 2-D hydraulic system configured to realize said correction to said measured steering angle on said 2-D plane.

44. The apparatus of claim 37, wherein said means (E) for performing said steering action by using said correction to said measured steering angle on said 2-D plane further includes:

(E2) a 2-D "flight by wire" system configured to realize said correction to said measured steering angle on said 2-D plane.

45. An apparatus for steering a vehicle along a predetermined 3-D path on a 3-D surface comprising:

(A) a means for obtaining a set of positioning data of said vehicle; (B) a means for modifying said set of positioning data of said vehicle;

(C) a 3-D means for measuring a set of steering angles of the front wheels of said vehicle relative to a predetermined reference direction on said 3-D surface;

(D) a means for calculating a set of corrections to said set of measured

steering angles on said 3-D surface;

and

(E) a means for performing a steering action by using said set of corrections to said set of measured steering angles on said 3-D surface in order to move said vehicle along said predetermined 3-D path on said 3-D surface.

46. The apparatus of claim 45, wherein said (A) means for obtaining said set of positioning data of said vehicle further includes:

(A1) a navigation system selected from the group consisting of: {GPS; GLONASS; combined GPS/GLONASS; GALILEO; pseudolite-based navigation system; and inertial navigation system (INS)};

and

(A2) a navigation antenna mounted on said vehicle at an optimum antenna position.

47. The apparatus of claim 46, wherein said navigation antenna is assumed to be mounted at a nominal navigation antenna position a predetermined reference point, and wherein said means (B) for modifying said set of positioning data of said vehicle further includes:

(B1) a means for specifying a distance between said nominal navigation antenna position and said optimum navigation antenna position.

48. The apparatus of claim 45, wherein said 3-D means (C) for measuring said set of steering angles of the front wheels of said vehicle relative to said predetermined reference direction on said 3-D surface further includes:

(C1) an angular sensor configured to measure said set of steering angles of the front wheels of said vehicle relative to said predetermined reference direction on said 3-D surface.

49. The apparatus of claim 45, wherein said 3-D means (C) for measuring said set of steering angles of the front wheels of said vehicle relative to said predetermined reference direction on said 3-D surface further includes:

(C1) a rotary potentiometer configured to measure said set of steering angles of the front wheels of said vehicle relative to said predetermined reference direction on said 3-D surface.

50. The apparatus of claim 45, wherein said means (D) for calculating said set of corrections to said set of measured steering angles on said 3-D surface further includes:

(D1) a steering control algorithm configured to use a set of control data to calculate said set of corrections to said set of measured steering angles on said 3-D surface; wherein said set of control data is selected from the group consisting of: {said set of modified positioning data of said vehicle; said measured steering angle on said 3-D surface; and a set of data defining said predetermined 2-D path on said 3-D surface}.

51. The apparatus of claim 45, wherein said means (E) for performing said steering action by using said set of corrections to said set of measured steering angles on said 3-D surface further includes:

(E1) a 3-D hydraulic system configured to realize said set of corrections to

said set of measured steering angles on said 3-D surface.

52. The apparatus of claim 45, wherein said means (E) for performing said steering action by using said set of corrections to said set of measured steering angles on said 3-D surface further includes:

(E2) a 3-D "flight by wire" system configured to realize said set of corrections to said set of measured steering angles on said 3-D surface.